CLAIMS

What is claimed is:

1   1.   A system for allocating millions of instructions per second (MIPS) to functions in

2   a queue waiting to be executed in association with the information content of a number of

3   communication channels, comprising:

4   a digital signal processor (DSP) having a number of communication ports each

5   connected to a different one of said number of communication channels;

6   a capacity determining means within said DSP for determining an amount of MIPS

7   available to be assigned;

8   a load determining means within said DSP for determining an estimate of MIPS

9   needed to execute each function waiting in the queue;

10   an allocating means within said DSP for allocating the MIPS to the functions

11   based on a hierarchical priority scheme;

12   a measuring means connected to said DSP for measuring an actual amount of the

13   MIPS used;

14   a revising means within said DSP for revising the estimate of the amount of MIPS

15   needed to execute each function waiting in the queue based on the measured amount of

16   the MIPS used; and

17   a reallocating means within said DSP for reallocating the available amount of

18   MIPS to the functions in accordance with the revised estimate and the hierarchical

19   priority scheme.

1   2.   The system of claim 1, further comprising:

2   a comparing means within said DSP for comparing the sum of the measured

3   amount of MIPS used to a high and a low threshold value;

4   an alarming means interconnected with said DSP for setting an alarm if the sum of

5   the measured amount of MIPS used exceeds the high threshold value; and removing the

6   alarm if the sum of the measured amount of MIPS used is less than the low threshold

7   value.

1   3.   The system of claim 2, further comprising:

2   a throttling means within said DSP for assigning a resource throttling value to each

3   function waiting in the queue to be executed when the alarm is set, wherein the throttling

4   value determines the reduction of the MIPS allocated to each of the functions.

1   4.   The system of claim 2, further comprising:

2   a reducing means within said DSP for reducing a number of instances for which a

3   particular function may execute concurrently when the alarm is set.

1   5.   A system for allocating memory to functions in a queue waiting to be executed,

2   comprising:

3   a digital signal processor (DSP) having a number of communication ports;

4   a number of communication channels, each connected to a different one of said

5   communication ports;

6   a capacity determining means within said DSP for determining an amount of

7   memory available to be assigned;

8   a load determining means within said DSP for determining an estimate of memory

9   needed to execute each function waiting in the queue;

10   an allocating means within said DSP for allocating the memory to the functions

11   based on a hierarchical priority scheme;

        a measuring means connected to said DSP for measuring an actual amount of the

    memory used;

        a revising means within said DSP for revising the estimate of the amount of

memory needed to execute each function waiting in the queue based on the measured amount of the memory used; and

a reallocating means within said DSP for reallocating the available amount of memory to the functions in accordance with the revised estimate and the hierarchical priority scheme.

1 6.   The system of claim 5, further comprising:

2   a comparing means within said DSP for comparing the sum of the measured

3 amount of memory used to a high and a low threshold value;

4   an alarming means interconnected with said DSP for setting an alarm if the sum of

5 the measured amount of memory used exceeds the high threshold value and removing the

6 alarm if the sum of the measured amount of memory used is less than the low threshold

7 value.

1 7.   The system of claim 6, further comprising:

2   a throttling means within said DSP for assigning a resource throttling value to each

3 function waiting in the queue to be executed when the alarm is set, wherein the throttling

4 value determines the reduction of the memory allocated to each of the functions.

1 8.   The system of claim 6, further comprising:

2   a reducing means within said DSP for reducing a number of instances for which a

3 particular function may execute concurrently when the alarm is set.

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